



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,087	06/27/2003	Fernando C. Vidaurri JR.	CPCM:0002-I/FLE 33776US	7544
7590	12/21/2005		EXAMINER	
Michael G. Fletcher Fletcher Yoder P.O. Box 692289 Houston, TX 77269-2289			BUTTNER, DAVID J	
			ART UNIT	PAPER NUMBER
			1712	

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/609,087  
Filing Date: June 27, 2003  
Appellant(s): VIDAUERR ET AL.

**MAILED**

**DEC 21 2005**

**GROUP 1700**

**Michael Fletcher  
For Appellant**

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/2/05 appealing from the Office action mailed 6/20/05.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,856,433	KOYAMA	1-1999
5,093,469	SENGA	3-1992
3,867,356	CAMPBELL	2-1975

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 68 and 71 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not provide basis for exclusion of lithium halide. The specification specifically calls for its inclusion (page 8 line 20).

Claims 42-50,70 and 72 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Senga '469.

Senga exemplifies (No. 1) reacting NaOH, and N-methylpyrrolidone in water at 118<sup>0</sup>C. This is appellant's first step of reacting metal hydroxide with polar organic compound. The temperature is raised to 186<sup>0</sup>C to distill off water. This qualifies as appellant's second step of removing at least a portion of the water from the solution. Senga further isolates the resultant sodium N-methyl amino butyrate into a dry state.

Senga adds the dry sodium N-methyl amino butyrate to fresh N-methyl pyrrolidone and sodium hydrosulfide (appellant's sulfur source) and distills off water at 202<sup>0</sup> C (col. 8 line 10-17). This is applicant's next step, with the exception that a dry-rather than a solution of sodium N-methyl amino butyrate is employed. Finally, lithium chloride and dichlorobenzene is added and polymerization carried out (col. 8, line 33-37) to form polyphenylenesulfide which is applicant's last step.

It is apparent that isolating the dry metal aminoalkanoate was carried out merely to perform tests to confirm the identity of the compound.

In a commercial process, the time and expense of this isolation (i.e. removal of excess N methylpyrrolidone which acts as a solvent) would not be carried out except for possible random quality control checks on the sodium N-methyl amino butyrate being produced. This is especially true in view of the fact fresh N- methyl pyrrolidone is added along with the sodium hydrosulfide (col. 8, line 13) during preparation of the polyphenylenesulfide.

It is readily apparent to one of ordinary skill to mix the dehydrated N-methylpyrrolidone/sodium aminobutyrate solution directly with the sulfur source.

Further, Senga states that the reactants can be added in the polar solvent (i.e. N-methylpyrrolidone) and in any order (col. 6 line 11). This also suggests leaving the sodium aminobutyrate in solution with N-methylpyrrolidone prior to adding the sulfur source. This would result in contacting the sulfur source with the solution of sodium aminobutyrate in N-methylpyrrolidone appellant calls for in his third step.

In regards to the metal contamination of appellant's claims 50 and 70, the examiner assumes Senga's PPS inherently has such low metal contamination. Senga's process uses the same ingredients, temperatures etc as appellant. Senga's "extra" isolation step would not be expected to add metal impurities.

Claims 1,35-50,60-67,69,70 and 72 rejected under 35 U.S.C. 103(a) as being unpatentable over Senga '469 in view of Koyama '433.

Senga does not teach what his reactor(s) is made of. Koyama (col 5 line 3-8,56-60) teaches some specific stainless steel alloys are corrosion resistant when polymerizing PPS. This specific alloy is used to form various vessels, tanks etc which come into contact with solvents and reaction mixtures (col 3 line 52-64).

It would have been obvious to use these alloys as the reactor for making Senga's PPS to decrease corrosion. Inherently, the low metal ppm must result because Senga suggests the same polymerization procedure (with an additional isolation step) as applicant. Using the same vessel to form the sodium aminobutyrate and conduct polymerization would lessen the total cost for the manufacturer. Senga does not place any limitation on or preclude using the same reactor for both steps.

Claims 42-50 and 70-72 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Campbell '356.

Campbell (example III) reacts NaOH with methylpyrrolidone in water at 118° C, which distills off the water (col. 5, line 43-49). This meets applicant's first and second steps. Although Campbell's example III goes on to isolate the resultant sodium N-methylaminobutyrate from its solution, it is clear this done merely to confirm the identity of the product in solution. Also note that the "solution" is said to useful in preparation of poly(phenylenesulfide) polymers (col 5 line 31-37) which further suggests omitting the isolation step.

Sodium bisulfide and N-methylpyrrolidone is added to the sodium methylaminobutyrate and heated to distill off more water at 198°C (col 3 line 36-42).

This is applicant's next two steps. Finally, dichlorobenzene is added and polymerization is commenced (col. 3, line 44). This meets applicant's last step.

In regards to the metal contamination of appellant's claims 50 and 70, the examiner assumes Campbell's PPS inherently has such low metal contamination. Campbell's process uses the same ingredients, temperatures etc as appellant. Campbell's "extra" isolation step (if employed), would not be expected to add metal impurities.

Claims 1,35-50 and 60-72 rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell '356 in view of Koyama '433.

Campbell does not teach what his reactor(s) is made of. Koyama (col 5 line 3-8,56-60) teaches some specific stainless steel alloys are corrosion resistant when polymerizing PPS. This specific alloy is used to form various vessels, tanks etc which come into contact with solvents and reaction mixtures (col 3 line 52-64).

It would have been obvious to use these alloys as the reactor for making Campbell's PPS to decrease corrosion. Inherently, the low metal ppm must result because Campbell suggests the same polymerization procedure (with an additional isolation step) as applicant. Using the same vessel to form the sodium aminobutyrate and conduct polymerization would lessen the total cost for the manufacturer. Campbell does not place any limitation on or preclude using the same reactor for both steps.

**(10) Response to Argument**

Appellant argues the exclusion of lithium halide is supported because the specification does not require the inclusion of molecular weight controlling agents, suggests other molecular weight controlling agents and that the examples do not use lithium halide.

This is not convincing. The claim does not exclude all molecular weight controlling agents or require certain alternative agents be present. Negative limitations recited in the claims which did not appear in the specification as filed, introduce new concepts (Ex parte Grasselli 231 USPQ 393).

Applicant argues Senga isolates his sodium methylaminobutyrate by washing with benzene before combining with the sulfur source.

Senga's does isolate his sodium methylaminobutyrate in his examples. However, the isolation was conducted in order to perform an elemental analysis to confirm the identity of the product and its yield. Senga does not require the compound to be isolated to a solid prior to contact with the sulfur source.

Senga (col 3 line 9-12) specifically teaches the sodium aminoalkanoate can be used in the form of an aqueous solution. One of ordinary skill is clearly led to use the sodium aminoalkanoate/N-methylpyrrolidone/partially(or fully)dehydrated water solution without isolation in making the polyphenylenesulfide. Why would one of ordinary skill bother to isolate the sodium methylaminobutyrate from N-methylpyrrolidone if additional N-methylpyrrolidone is to be later added along with the sulfur source?

Appellant argues Senga does not report the amount of metal impurities (claims 50 and 72) in his PPS.

Simply measuring and claiming the inherent impurity content of a previously known (or obvious) process does not require a finding of patentable subject matter (MPEP2112). The examiner has provided rationale tending to show inherency of the impurity content (because the reference uses the same ingredients, temperatures etc). The burden is shifted to applicant to show otherwise. Note that appellant does not even allege (let alone prove) what the impurity content is for the prior art reference.

Campbell provides an even stronger suggestion of omitting the isolation step. Campbell specifically states his solution of sodium methyl aminobutyrate in N-methylpyrrolidone is a useful "solution" which can be used in preparation of PPS (col 5 line 31-36). If isolation was required, Campbell would have stated the "sodium aminoalkanoate" is useful in preparation of PPS. Using the "solution" for polymerization would result in contacting the sulfur source directly with the sodium methylaminobutyrate/N-methylpyrrolidone solution as required by appellant's claims.

Appellant argues Campbell does not report the pressure used when dehydrating the sulfur source/sodium methylaminobutyrate solution (claim 49).

This is true. However, Campbell does explicitly report the dehydration pressure in earlier steps to be substantially atmospheric pressure (col 5 line 23). Without further guidance, one would assume similar pressures would be used in the second dehydration.

Appellant argues Campbell does not report the amount of metal impurities (claims 50 and 72) in his PPS.

Simply measuring and claiming the inherent impurity content of a previously known (or obvious) process does not require a finding of patentable subject matter (MPEP2112). The examiner has provided rationale tending to show inherency of the impurity content (because the reference uses the same ingredients, temperatures etc). The burden is shifted to applicant to show otherwise. Note that appellant does not even allege (let alone prove) what the impurity content is for the prior art reference.

Appellant argues there is little or no value in isolating the solid alkali metal aminoalkanoate for random quality checks.

This argument actually supports the proposed rejection of omitting the isolation step.

Appellant's argument regarding "intermediate ceiling temperatures of 50-200<sup>0</sup>C" is not understood.

Senga clearly uses a temperature of 118<sup>0</sup>C when combining the metal hydroxide with polar organic compound.

Appellant argues Senga and Campbell do not suggest completing all the steps in the same vessel.

Using the same vessel to form the sodium aminobutyrate and conduct polymerization would lessen the total cost for the manufacturer. Senga nor Campbell places any limitation on or preclude using the same reactor for both steps.

Arguments regarding Senga's polymerization temperature are not understood in view of the fact appellant has no claim limitations pertaining to his own polymerization step temperature (ie the final step after adding dihaloaromatic).

To summarize, the examiner has pointed out where the prior art impliedly (if not expressly) suggests omitting the isolation step and directly adding the sulfur source to the sodium methylaminobutyrate. Furthermore, the examiner has provided a rationale reasoned from scientific principles for skipping the isolation step in accordance with MPEP2144. No competent chemical practitioner could challenge the principle that isolating a chemical compound from solution occurs with at least some economic loss in expense and time. The elimination of a step as well as its function is generally considered obvious (MPEP 2144.04 II). The examiner can further cite In re Dilnot 138USPQ248 and In re Korpi 73USPQ229 regarding the obviousness of making chemical processes continuous.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

David Buttner

DAVID J. BUTTNER  
PRIMARY EXAMINER

*David Buttner*

Conferees:

*Randy Gutakowski*  
Randy Gutakowski

*James Sedleck*  
James Sedleck